Amendments to the specification

Paragraph at page 2, line 18 to page 3, line 2:

B1

The two magnetic layers 14, 16 of the MTJ cell 10 are distinguished in that the fixed magnetic layer 14 has a predetermined magnetization, for example, in one of the two horizontal directions of the illustrations, while the free magnetic layer 16 can be semi-permanently poled and repoled into either of the two horizontal directions. Which horizontal direction determines the state of the memory cell 10. The magnetic layers 14, 16 are typical composed of transition metals and their alloys, for example, NiFe, CoFe, Co, or Ru or a bilayer or sandwich structure of such materials. The iron alloys are typically rich in the transition metal, for example, $Ni_{80}Fe_{10}$ or $Co_{90}Fe_{10}$. The barrier 18 may be composed of oxidized aluminum. The distinction between fixed and free magnetic layers may be determined by the fixed layer being grown on an anti-ferromagnetic layer, also called the exchange-bias layer which prevents the adjacent fixed magnetic layer from changing state. The exchange-bias layer is typically a manganese alloy, for example, $Pt_{50}Mn_{50}$. Other anti-ferromagnetic compositions include MnFe, MnIr, MnRh, NiO, TbCo, and iridium alloys. The exchange-bias layer allows the two magnetic <u>layers 14, 16</u> ~~layer 16, 20~~ to have the same composition. Other buffer, transition, and capping layers are typically included in the stack structure.

Paragraph at page 5, lines 6-10:

B2

In one embodiment, the magnet assembly is a magnetic dipole ring comprising a plurality of eight or more magnets arranged in a ring around the substrate. The magnets may [[have]] be contiguous segments having arc shapes. The magnetization directions of the magnets precesses by 720° around the ring. Such a dipole magnet ring produces a substantially uniform magnetic field inside the ring.

Paragraph at page 6, line 28 to page 7, line 9:

B3

A specific example of a first embodiment of a magnetron sputter reactor 20 of the invention is illustrated in the schematic cross-sectional view of FIG. 4. The fairly conventional portion of the reactor 40 will be described first. Cha et al. have described details of some of the components in US Patent Application 09/910,585, filed July 20, 2001, <u>now abandoned, published as Publication No. US-2003-0015421-A1, and</u> incorporated herein by reference in its entirety. The reactor 40 includes a vacuum processing chamber principally formed of a chamber body 42 and an adapter 44 formed generally symmetrically about a central axis 46 and electrically grounded. A vacuum pumping system 48 is connected to the chamber through a pumping port 50 and can pump the chamber to a base pressure in the range of 10^{-8} Torr. However, an argon gas source 52 supplies argon into the chamber through a mass flow controller 54 to act as a sputtering working gas. Typical argon pressures used in sputtering are in the range of 0.5 to 5 milliTorr.